APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/100,799	06/19/1998	HIROAKI KUBO	05058/71301	8949

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EXAMINER
VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)	
Office Action Summary	09/100,799		KUBO, HIROAKI	
	Examiner		**Art Unit**	
	John M. Villecco		2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

     4a) Of the above claim(s) *1-9* is/are withdrawn from consideration.

5)☒ Claim(s) *16-21 and 25-32* is/are allowed.

6)☒ Claim(s) *10-15,22-24 and 33-41* is/are rejected.

7)☒ Claim(s) *35 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 1998* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as

being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in Paper No. 7.

Specification

2.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a
separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed
150 words in length since the space provided for the abstract on the computer tape used by the
printer is limited. The form and legal phraseology often used in patent claims, such as *"means"*
and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist
readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the
title. It should avoid using phrases which can be implied, such as, "The disclosure concerns,"
"The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3.   Claims 35 and 39 are objected to because of the following informalities:

- Claim 35 recites the phrase "interpolating process that executed" in line 2. This

  phrasing is unclear. For examination purposes it will be assumed that the

  applicant meant to use the phrase – interpolating process that is executed –.

- Claim 39 recites the limitation "executing a varied interpolation process

  depending on whether the captured image is to be displaced or recorded". From

the specification it appears that applicant meant to use the word – displayed –

instead of the word "displayed".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

6.   Claims 22-24 recite the limitation "the compression rate". There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 33-34 and 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by

Christopher et al. (U.S. Patent No. 5,351,087).

As for claim 33, Christopher discloses a two-stage interpolation system that is capable of

varying the interpolation process based upon the required compression. More specifically,

Christopher shows that a user can manipulate values of K based upon the compression required.

This K value is input into the compensated variable interpolator (394) and the interpolation

process is changed. Christopher also states that depending upon the speed up required for

compression the values of K and C can be changed accordingly. Additionally, the data used in

the interpolation process is based on color data since the system uses luminance and

chrominance values. Furthermore, since the information being processed uses luminance and

chrominance values it follows that the system has a filter array of a plurality of colors. See the

last sentence of the abstract and Figures 17 and 18.

As for claim 34, the reason that Christopher uses the varied interpolation process is

because he is changing the size of the images being reproduced on the screen. See Figures 1a-1i.

With regard to claim 36, Christopher states that depending upon the speed up required

(for compression) the value for the interpolator can be changed. This implicitly means that

depending upon the amount of compression required, the interpolation is sped up to match the

compression rate. Furthermore, as the compression rate becomes higher, less and less data is

produced and the higher the processing speed becomes. Therefore, it is inherent that a higher

processing speed would result from a higher compression rate.

Regarding claim 37, Christopher discloses a two-stage interpolation system that is

capable of varying the interpolation process based upon the required compression. More

specifically, Christopher shows that a user can select a value of K based upon the compression

required. This K value is input into the compensated variable interpolator (394) and the

interpolation process is changed. Christopher also states that depending upon the speed up

required for compression the values of K and C can be changed accordingly. Additionally, the

data used in the interpolation process is based on color data. See the last sentence of the abstract

and Figures 17 and 18.

As for claim 38, as mentioned above, Christopher states that depending upon the speed

up required (for compression) the value for the interpolator can be changed. This implicitly

means that depending upon the amount of compression required, the interpolation is sped up to

match the compression rate. Furthermore, as the compression rate becomes higher, less and less

data is produced and the higher the processing speed becomes. Therefore, it is inherent that a

higher processing speed would result from a higher compression rate.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christopher et al.

(U.S. Patent No. 5,351,087) in view of Go (U.S. Patent No. 6,226,414).

As mentioned above in the discussion of claim 33, Christopher discloses all of the

limitations of the parent claim. However, Christopher fails to disclose the use of an averaging

filter, median filter and a simple interpolation method. Go, on the other hand teaches it is well

known in the art to replace a group of pixels with a representative pixel. More specifically, Go

discloses that the averaging filter and the median filter are commonly used as disclosed in

column 6, lines 45-55. Furthermore, although not specifically stated it would have been obvious

to use the simple interpolation method which involves replacing a block of pixels with the value

of one of the pixels so that the processing time of determining the mean of the median can be

eliminated thereby giving a faster overall processing time. Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to operate the

interpolation means of Christopher with any of a mean filter, median filter or a simple filter so

that a processing time can be selected that will give the performance required by the user.

11.   Claims 10-11, 15, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Nobuoka (U.S. Patent No. 5,534,919) in view of Nakajima et al. (U.S. Patent No.

6,025,929).

Regarding claim 10, Nobuoka discloses an image pickup apparatus capable of changing

between various interpolation methods. The camera includes a CCD (1) that captures an image

and circuitry for executing a varied interpolation method that includes 3 different methods for

interpolating pixel data. Furthermore, although not explicitly stated, each of the three

interpolation methods uses a different amount of input data when performing interpolation. It is

inherent that when more data is used in computing the value, the longer the processing time and

the higher the quality. However, Nobuoka chooses the interpolation method by determining the

difference among adjacent pixel data. Therefore, Nobuoka fails to disclose executing varied

interpolation based on whether the image is to be displayed or recorded. See column 4, lines 5-

65.

Nakajima, on the other hand, discloses that it is well known in the art to vary processing

speed based on the type of image required. Nakajima discloses the ability select the type of

image quality required and adjusts the operation of the system to accommodate the selection.

For instance a user can select whether they want a high-quality or high-speed output and

processing is adjusted. See column 9, lines 2-47. Additionally, Nakajima discloses adjusting a

color matching process based on the selection. Official Notice is taken that it is well known in

the art to display images at a lower quality than they are recorded so that processing time for

viewing the image on a display is reduced. Even though the system is used in a printer the input

data is composed of image data and hence could be used in an image processor too. Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to

select an interpolation process based on the type of image quality required so that processing

time can be cut down.

Regarding claim 11, it would have been obvious to one of ordinary skill in that art that

the use of a faster processing speed when displaying an image is beneficial to a user so that the

image can be viewed on a screen faster. Therefore, a faster interpolating process would be

beneficial. Additionally, a better interpolation process would be required when recording an

image so that a higher quality image is obtained.

As for claim 15, Nobuoka discloses that interpolation portion executes interpolation

based on each color of the image data.

Regarding claim 39, Nobuoka discloses an image pickup apparatus capable of changing

between various interpolation methods. The camera includes a CCD (1) that captures an image

and circuitry for executing a varied interpolation method that includes 3 different methods for

interpolating pixel data. Furthermore, although not explicitly stated, each of the three

interpolation methods uses a different amount of input data when performing interpolation. It is

inherent that when more data is used in computing the value, the longer the processing time and

the higher the quality. However, Nobuoka chooses the interpolation method by determining the

difference among adjacent pixel data. Therefore, Nobuoka fails to disclose executing varied

interpolation based on whether the image is to be displayed or recorded. See column 4, lines 5-

65.

Nakajima, on the other hand, discloses that it is well known in the art to vary processing

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image quality required and adjusts the operation of the system to accommodate the selection.

For instance a user can select whether they want a high-quality or high-speed output and

processing is adjusted. See column 9, lines 2-47. Additionally, Nakajima discloses adjusting a

color matching process based on the selection. Although, not specifically disclosed it is well

known in the art to display images at a lower quality than they are recorded so that processing

time for viewing the image on a display is reduced. Therefore, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to select an interpolation

process based on the type of image quality required so that processing time can be cut down.

As for claim 40, as mentioned above, it would have been obvious to one of ordinary skill

in that art that the use of a faster processing speed when displaying an image is beneficial to a

user so that the image can be viewed on a screen faster. Therefore, a faster interpolating process

would be beneficial. Additionally, a better interpolation process would be required when

recording an image so that a higher quality image is obtained.

As for claim 41, Official Notice is taken as to the fact that gamma correction is a common correction factor in image processing. Gamma correction allows for a clearer more defined image that matches the characteristics of the display being used.

12.   Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobuoka (U.S. Patent No. 5,534,919) in view of Nakajima et al. (U.S. Patent No. 6,025,929) and further in view of Haruki (U.S. Patent No. 5,990,949).

Regarding claim 12, as mentioned above in the discussion of claim 10, both Nobuoka and Nakajima disclose all of the limitation of the parent claim. However, neither of the aforementioned references discloses a gamma correction section for correction a gradation characteristic between recording and displaying. Haruki, on the other hand, discloses that different gamma corrections are carried out for images that are to be displayed on an LCD (36) than image signals that are not. The second gamma correction circuit (24) outputs a different gamma correction for an image to be displayed on an LCD while the first gamma corrected image is sent to the flash memory (28). The ability to apply various gamma corrections to an image depending upon where the image is to be sent allows for a better image on the display device. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a gamma correction characteristic depending upon whether the image is to be recorded or displayed.

As for claim 13, Haruki discloses that a different gradation characteristic is given to an image signal that is to be sent to an LCD (36) than to an image signal that is to be sent to the flash memory (28).

Regarding claim 14, Haruki discloses an LCD (36) on the camera for displaying the

image.

Allowable Subject Matter

13.   Claims 16-21 and 25-32 are allowed.

14.   The following is a statement of reasons for the indication of allowable subject matter:

As for claim 16, the prior art does not teach nor reasonably suggest an imaging device

that corrects for both a frequency characteristic and a gradation characteristic according to the

image recording mode.

Any response to this action should be mailed to:

> Commissioner of Patents and Trademarks
> Washington, D.C. 20231

>   or faxed to:

> > (703) 308-6306 (For either formal or informal communications intended
> > for entry. For informal or draft communications, please label
> > **"PROPOSED"** or **"DRAFT"**)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
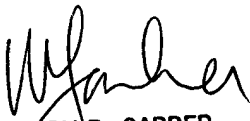
Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460.

The examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the customer service desk whose telephone number is (703) 306-0377.

JMV
6/3/02

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600